GRINEV, K.M.; KRASHENINNIKOV, M.N.; KROTKOV, A.P.; YAMPOL'SKIY, I.a nauchnyy redaktor; KONVISSER, L., redaktor; GRAZHDANKINA, V. tekhnicheskiy redaktor

[Pneumatic conveyers in cement industries] Pnevmaticheskiy transport v tsementnoi promyshlennosti. Moskva, Gos. izd-vo lit-ry po stroit. materialam, 1951. 138 p. [Microfilm] (MIRA 10:4)
(Conveying machinery) (Cement industries)

YAMPOL'SKIY, I., inzh.

Ways of increasing the effective use of mechanical devices.
Na stroi.Ros. 6 no.2:5-6 F '65.
(MIRA 19:1)

YAMPOL'SKIY, I.

New mobile machine for making concrete building blocks.
Sel'.stroi. 11 no.6:11-12 Je '56. (MIRA 9:9)

1.Zamestitel' nachal'nika tekhnicheskogo upravleniya Ministerstva gorodskogo i sel'skogo stroitel'stva SSSR.
(Concrete blocks)

YAMPOL'SKIY, I., inzh.

Three-blade ripper for working frozen ground. Zhil.-kom.khoz. 10 no.2:26 '60. (MIRA 13:5)
(Earthmoving machinery--Cold weather operation)

YAMPOL'SKIY, I., inzh.

Mobile mortar mixer. Zhil.-kom. khoz. 10 no.10:28-29 '60.
(MIRA 13:10)

(Mixing machinery)

YAMPOL'SKIY, I., inzhener.

A portable machine for making hollow wall tile. Gor.i sel'.stroi. No.7:15-16 Jl '57. (MLRA 10:10)
(Hollow tiles)

L 40853-66 EWT(m)/T/EWP(t)/ETI IJP(c) DJ/WW/JD

ACC NR: AP6021719 (N) SOURCE CODE: UR/0229/66/000/005/0025/0030

AUTHOR: Trifonov, Ye. V.; Yampol'skiy, I. D.; Piruyev, Ye. V.; Ekzemplyarskiy, V. Ya.

ORG: None

TITLE: Water-lubricated plain bearings for high-speed turbine units

SOURCE: Sudostroyeniye, no. 5, 1966, 25-30

TOPIC TAGS: hydrostatic bearing, hydrodynamic bearing, bearing material, bearing stability, bronze, corrosion resistance, cavitation, water, turbine

ABSTRACT: The authors discuss difficulties associated with the use of water-lubricated bearings in high-speed turbine units. Some of these difficulties are the low viscosity of water as compared to turbine lubricants and the difficulties of machining materials suitable for operation under conditions of high temperature and pressure. The main difficulty however is the viscosity of water which produces a very thin lubricating layer. The thickness of the layer permits additional friction by particles suspended in the water. The authors propose the use of hydrostatic bearings which ensure a sufficiently thick lubricating layer independent of lubricant viscosity. Such bearings are widely used in chemical machine building. These bearings are based on the desired principles, but still have many disadvantages. Therefore bearings were developed and tested which are called "combination bearings" incorporating both hydrostatic and

Card 1/3 UDC: 621.822.5

hydrodynamic principles. Laboratory test data are given together with verification of these data under operational conditions. The bearing material is the main factor in determining optimum bearing construction. Bearing materials have to satisfy the following requirements: 1. they must be highly resistant to corrosion and cavitation; 2. they must be resistant to scratches and must have good run-in characteristics at both high and low speeds; 3. they must have good wear resistance under conditions of semi-fluid friction, and in particular must be wear-resistant with respect to abrasive particles in water. As a result of several years of operational experience, OF-10-1 bronze was chosen for the bearings. This material has certain disadvantages such as comparatively low run-in properties and a high coefficient of expansion. All bearing designs considered in this article are made of this material. Four different types of combination bearings are tested. A diagram is given showing the temperature for the internal surface of the bearing inserts. Tests show that local heating of bearings is the main source of failure. Local thermal deformations affect the inserts and reduce cooling for the heated zone. The continuation of this process causes binding between shaft and bearing. Three of the four types of bearing designs tested suffer from these defects, while the fourth type (see figure) does not. This bearing is designed so that expansion due to heat both under normal and under emergency operating conditions does not reduce the clearance between shaft and bearing. The bearing inserts have a complex shape and are made so that the support surface is composed of four flexible elements. They are threaded in place, and in the event that fluid pressure falls, the shaft rests on the two lower lobes. Under these conditions, a wedge-shaped

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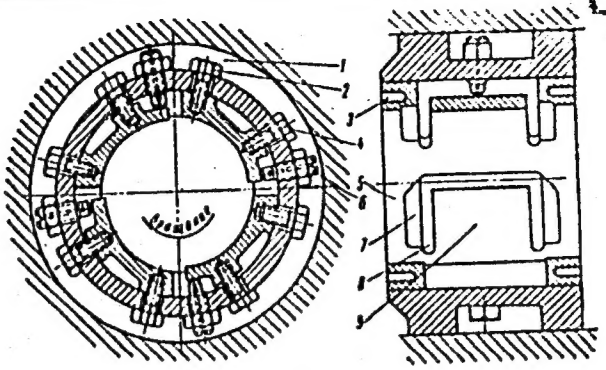
ACC NR: AP6021719

clearance is formed between the shaft and the section in which a hydrodynamic lifting force is set up. This enables the shaft to withstand emergency conditions of short duration. Thus the results of the study show that it is possible to develop a reliable water-lubricated bearing for high-speed turbine installations. The main problems for these conditions are ensuring the operation of the bearing under conditions of interrupted lubrication, and sufficient vibration resistance at high rpm. Of all types of bearing designs studied, the four-section lobe type is best suited for operation under conditions of water-lubrication in high-speed rotors. Orig. art. has: 6 figures, 1 table.



1--lubricant flow channel; 2--fastening bolt; 3--expansion groove; 4--strain pin; 5--band; 6--regulating bolt; 7--0.5 mm depression; 8--groove; 9--slip surface

SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 000

Card 3/3 MLP

YAMPOL'SKIY, I.I.

YAMPOL'SKIY, I.I., inzh.

Machines for the preparation of wall panels. Mekh.trud.rab. 11 no.9:40-42 S '57. (MIRA 10:11)

(Building blocks)

YAMPOL'SKIY, I.I.

Urgent machinery problems in placing concrete elements in building apartment houses and public buildings. Bet.i zhel.-bet. no.11: 413-414 N '56. (MLRA 9:12)

1. Zamestitel' nachal'nika tekhnicheskogo upravleniya Ministerstva gorodskogo i sel'skogo stritel'stva SSSR.
(Cranes, derricks, etc.)

YAMPOL'SKIY, I.I.; PROSTOSERDOV, A.P., redaktor izdatel'stva; STEPANOVA, E.S., tekhnicheskiy redaktor

[Safety manual for work with band saws] Pamiatka po tekhnike bezopasnosti pri rabote na lentochno-pil'nom stanke. Moskva, Gos.izd-vo lit-ry po stroit. i arkhit., 1957. 15 p. (MLRA 10:7)
(Saws--Safety measures)

ZHIVOTKOV, S.G.; YAMPOL'SKIY, K.I., inzh.

Practice of using portable gas welding units in the repair of communication cables. Vest. sviazi 22 no.5:22-23 My '62. (MIRA 15:5)

1. Nachal'nik Upravleniya kabel'noy i radiorelaynoy magistrali, g. Kuybyshev (for Zhivotkov).

(Electric cables--Welding)

GRATSERSHTEYN, Izrail' Markovich; BELYAYEV, A.I., doktor tekhn.nauk, prof., retsenzent; YAMPOL'SKIY, Kh.A., red.; PINEGIN, I.I., red.izd-va; MIKHAYLOVA, V.V., tekhn.red.

[Development of the aluminum industry in the U.S.S.R.] Razvitie aliuminievoi promyshlennosti SSSR. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1959. 159 p. (Aluminum industry) (MIRA 12:6)

GRATSERSHTEYN, Izrail Markovich; MALINOVA, Revekka Davydovna; METT, G.Ya., kandidat ekonomicheskikh nauk; retsenzent; MARATKANOV, V.M., inzhener, retsenzent; TYRIN, V.V., inzhener, retsenzent; KUZNETSOV, G.D., inzhener, retsenzent; YAMPOL'SKIY, Kh.A., redaktor; ARKHANGEL'SKAYA, M.S., redaktor; YEFIMOVA, A.P., tekhnicheskiy redaktor.

[Organization and planning at nonferrous metal enterprises; metallurgical plants and concentration mills] Organizatsiia i planirovanie na predpriiatiiakh tsvetnoi metallurgii; metallurgicheskie zavody i obogatitel'nye fabriki. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1955. 560 p. (MIRA 9:6)
(Nonferrous metal industries)

SOV/111-59-1-23/35

AUTHORS: Fel'dtser, N.G., Supervisor; Yampol'skiy, K.I., Engineer

TITLE: Detecting the Areas of Communication -Cable Sheath Faults with the Aid of Freon (Nakhozhdeniye mest povrezhdeniya obolochek kabeley svyazi pri pomoshchi freona)

PERIODICAL: Vestnik svyazi, 1959, 19 Nr 1, pp 23 - 24 (USSR)

ABSTRACT: To detect the location of sheath faults in communication cables, marker gases of radioactive and non-radioactive type may be used. Recently Soviet cable repair crews abandoned the use of radioactive marker gases because of various shortcomings, and turned to the use of halogenated hydrocarbons under the trade names of freon 12 and freon 22 the properties of which are indicated in table 1. Their advantages for the given purpose are expounded. They are used in connection with the GTI-2 leak detector (Figure 1) consisting of two parts, the pickup and ventilation device and the measuring block. The use of freon for cable-sheath fault

Card 1/2

Detecting the Areas of Communication-Cable Sheath Faults with the Aid of Freon

detection in 1957 and 1958 proved the efficiency and convenience of this method. There are 3 photos and 1 table.

ASSOCIATION: Laboratoriya upravleniya tekhnicheskoy ekspluatatsii kabel'noy magistrali (The Laboratory of the Administration for Technical Exploitation of the Cable Main)

YAKPOL'SKIY, L. N. Doc Med Sci -- (diss)"~~About~~ On Preformed ~~Of~~ Otc cerebral ~~Tracks~~ Paths and Certain Protective Mechanisms in Them". Len, 195?. 28 pp (First Len Med Inst im I.P. Pavlov). 300 copies (Kl, 10-58, 121).

YAMPOL'SKIY, L. N., doktor med. nauk

Pathogenesis of ascending infections from the external auditory meatus in animals. Vest. otorin. no.1:29-35 '62. (MIRA 15:7)

1. Iz Leningradskogo nauchno-issledovatel'skogo instituta bolezney ukha, gorla, nosa i rechi (dir. - prof. I. A. Lopotko, nauchnyy rukovoditel' - deystvitel'nyy chlen AMN SSSR prof. V. I. Voyachek)

(EAR--DISEASES)

YAMPOL'SKIY, L.N., doktor med. nauk

Function of the aquaeductus cochleae in cats and dogs and its nomenclature. Vest. oto-rin. 25 no.4:58-62 Jl-Ag '63. (MIRA 17:1)

1. Iz Leningradskogo nauchno-issledovatel'skogo instituta po boleznyam ukha, nosa, gorla i rechi (dir. - prof. I.A. Lopotko; nauchnyy rukovoditel' - deystvitel'nyy chlen AMN SSSR prof. V.I. Voyachek).

VYZHIGIN, G.V., inzh.; YAMPOL'SKIY, L.S., inzh.; VOLKOV, A.A., inzh.

New standard designs for multistory industrial buildings.
Prom. stroi. 42 no.3:2-6 '65. (MIRA 18:7)

1. TSentral'nyy nauchno-issledovatel'skiy i proyektno-eksperimental'nyy institut promyshlennykh zdaniy i sooruzheniy.

PUSHKAREV, V.I.; SHCHEGOLEVA, A.M.; Prinimali uchastiye: DUNDICH, Ye.I.; VISHNEVSKIY, V.L.; LEYBFREYD, A.Yu.; MIZERNIK, P.A.; RAPUTOVA, Ye.M.; KHRISTOFOROV, T.A.; YAMPOL'SKIY, L.S., red.; STAKVEL', L., red.; BABIL'CHANOVA, G., tekhn. red.

[English - Russian and Russian - English dictionary of building and architectural terms] Anglo - russkii i russko - angliiskii arkhitektruvno-stroitel'nyi slovar'. Pod red. L.S.IAmpol'skogo. Kiev, Gos. izd-vo lit-ry po stroit. i arkhit. USSR, 1961. 841 p. (MIRA 14:8)

(Building--Dictionaries) (Architecture--Dictionaries)
(English language--Dictionaries--Russian)
(Russian language--Dictionaries--English)

YAMPOL'SKIY, Leonid Semenovich; KOZLOVSKAYA, Yadviga Kazimirovna; KUL'CHITSKAYA, O., red.; LEUSHCHENKO, N., tekhn. red.

[Civil engineering; an English language textbook] Civil engineering; uchebnoe posobie po angliiskomu iazyku. Kiev, Gosstroiizdat, 1962. 338 p. (MIRA 16:7)
(Civil engineering)

YAMPOL'SKIY, L.S., inzh.

Erecting multistory industrial buildings without simultaneous sealing of joints. Prom. stroi. 41 no.2:6-8 F '64. (MIRA 17:3)

1. TSentral'nyy nauchno-issledovatel'skiy i proyektno-eksperimental'nyy institut promyshlennykh zdaniy i sooruzheniy.

YAMPOL'SKIY, M.

Sources for paying loans incurred to introduce modern technology and their computation. Den. i kred. 15 no.4:29-34 Ap '57. (Machinery in industry) (MLRA 10:6)

Yampol'skiy, M.

BERKOV, N.; YAMPOL'SKIY, M.

Issuing credit for the state purchasing operations of rural consumer cooperatives. Den. i kred. 15 no.8:25-27 Ag '57.
(Produce trade) (Credit) (MLRA 10:8)

BACHURIN, A.V.; MARGOLIN, N.S.; KONDRASHV, D.D.; GORICHEV, N.V.; ROGOVSKIY, N.I.; YAMPOL'SKIY, M.A.; TYUKOV, V.S.; ROTSHTEYN, L.A.; GERASHCHENKO, V.S.; KOTOV, V.F.; BAZAROVA, G.V., red.; PORTYANNIKOV, N.S., red.; GERASIMOVA, Ye.S., tekhn. red.

[Commodity and monetary relations during the period of transition to communism] Tovarno-denezhnye otnoshcheniia v period perekhoda k kommunizmu. Moskva, Ekonomizdat, 1963. 386 p. (MIRA 16:5)

(Economics)

YAMPOL'SKIY, M.I.

Cellular carborundum (from "Materials in Design Engineering", no.1, 1959). Ogneupory 25 no.5:240 '60. (MIRA 14:5)
(Silicon carbide)

YAMPOL'SKIY, M.I.; IVANOV, Ye.V.

Some problems of technology of the basic converter process. [from "Blast Furnace and Steel Plant" no. 5, '60]. Metallurg 6 no. 1:38-39 Ja '61. (MIRA 14:1)
(United States--Bessemer process)

SAKHAROV, V.S., inzh.; YAMPOL'SKIY, M.I., inzh.

Optima types of refractories for the laying of all-basic open-hearth furnaces. Met. i gornorud. prom. no.3:40-42 My-Je '62. (MIRA 15:9)

(Refractory materials)
(Open-hearth furnaces--Design and construction)

LANDIK, G.T.; YANCHENKO, M.K.

Detection of the source of brucellosis infection by laboratory examination of milk. Zhur. mikrobiol., epid. i immun. 40 no.1:79-83'63. (MIRA 16:10)

1. Iz Luganskoy oblastnoy sanitarno-epidemiologicheskoy stantsii.

BOGACHEVSKIY, Mikhail Borisovich, prof., doktor ekonom.nauk; BYKOV, Artemiy Konstantinovich, dotsent, kand.ekonom.nauk; DNEPROVSKIY, Stepan Petrovich, prof.; YAMPOL'SKIY, Moisey Markovich, kand. ekonom.nauk; BUCHKIN, B.I., red.; BILENKO, L.S., red.izd-va; FOMICHEV, P.M., tekhn.red.

[Financing and crediting of the consumers' cooperative societies of the U.S.S.R.] Finansirovanie i kreditovanie potrebitel'skoi kooperatsii SSSR; uchebnik dlia vuzov. Moskva, Izd-vo Tsentrosoiuza, 1959. 465 p. (MIRA 13:4)
(Cooperative societies--Finance)

VAYNSHTEYN, Eduard Grigor'yevich; YAMPOL'SKIY, Moisey Markovich; KORNEYEVA, R., red.; LEBEDEV, A., tekhn.red.

[Issuing credit for fixed assets] Kreditovanie zatrat v osnovnye fondy. Moskva, Gosfinizdat, 1960. 78 p. (Credit) (MIRA 13:7)

YAMPOL'SKIY, M.N.

Chain feeders for drying ducts. Biul.tekh.-ekon.inform. no.12: 7-9 '58. (MIRA 11:12)

(Drying apparatus)

YAMPOL'SKIY, M.N.; KHESIN, A.M.

Applying the principle of vibration in hammer crushers.
Koks i khim. no.7:14-17 Jl '61. (MIRA 14:9)

1. Ukrainskiy proyektno-konstruktorskiy i nauchno-issledovatel'skiy institut po obogashcheniyu i briketirovaniyu ugley.
(Coal preparation plants—Equipment and supplies)
(Crushing machinery)

YAMPOL'SKIY, M.Z.

SOV/137-58-8-18096

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 269 (USSR)

AUTHOR: Yampol'skiy, M. Z.

TITLE: On the Method of Colorimetric Determination of Traces of Indium and Gallium (K metodike kolorimetricheskogo opredeleniya sledov indiya i galliya)

PERIODICAL: Uch. zap. Kurskogo gos. ped. in-ta, 1957, Nr 4, pp 116-127

ABSTRACT: Ga and In occur in nature in insignificant quantities, and their content in Zn, Pb, and Al ores varies from 0.001 to 0.0001%. A review of various colorimetric methods of determining and Ga is adduced. Work was carried out on the approval of a large number azo dyes, as a result of which it was established that for the colorimetric methods of determination of traces of In and Ga, the reagents should be sought amont the azo dyes containing hydroxyl radicals in the ortho state relative to one another. Stilbazo gives a highly sensititve reaction with In and Ga. Among the triphenylmethane compounds containing the phenol hydroxyl and the carboxyl radicals in the ortho-state there are also coloring agents which can serve as reagents for In and Ga. V. N.

Card 1/1

Chair of Chemistry, Kursk State Pedagogical Inst.

1. Ores—Colorimetric analysis 2. Indium—Determination 3. Gallium—Determination

YAMPOL'SKIY, M.Z.

SOV/137-58-8-18141

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 276 (USSR)

AUTHOR: Yampol'skiy, M. Z.

TITLE: Composition of the Complex Compound and Selection of Reagents for the Colorimetric Determination of Indium and Gallium (Sostav kompleksnogo soyedineniya i vybor reaktivov dlya kolorimetricheskogo opredeleniya indiya i galliya)

PERIODICAL: Uch. zap. Kurskogo gos. ped. in-ta, 1957, Nr 4, pp 128-142

ABSTRACT: Preliminary data on the mechanics of the reaction of interaction of stilbazo (I) and other izo-coloring agents with the ions of Al, Ga, and In were obtained. Certain physicochemical constants of the complex compounds forming were established. The best reagent is I. Al and Ga react with I at a pH of 6.0 at the ratio of 1:2, In at 1:1.

1. Colorimetry 2. Complex compounds---Properties K. K.
3. Gallium---Determination 4. Indium---Determination
5. Reagents---Selection

Card 1/1 Chair of Chemistry, Kursk State Pedagogical Inst.

SOV/137-59-2-4764

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 2, p 343 (USSR)

AUTHOR: Yampol'skiy, M. Z.

TITLE: Photometric Determination of Traces of Gallium With the Stilbazo Reagent. Communication I. (Fotometricheskoye opredeleniye sledov galliya s pomoshch'yu reaktiva stil'bazo. Soobshcheniye I)

PERIODICAL: Uch. zap. Kurskogo. gos. ped. in-ta, 1958, Nr 7, pp 67-72

ABSTRACT: Determination of Ga is feasible in solutions with 6.5 - 6.1 pH with a maximum light absorption of 530 mμ . For the determination of Ga a solution of the salt of the metal in the form of gallium-rubidium alum and 0.5 cc of 0.01% aqueous solution of the reagent are added to 2 cc of 6.5 pH ammonium-acetate buffer solution. After ten minutes the optical density is measured. The colorations of the solutions with 7 μg Gallium content comply with Beer's law. Ga is determined in the presence of 400 mg Cd and 300 mg Zn in pH 4.0 solutions. Zn salts react with stilbazo at pH $\geq$ 5.0. 200 μg Al do not impede the direct determination of traces of Ga. The results of determination of Ga in metallic Zn are adduced.

Z. G.

Card 1/1

YAMPOL'SKIY, M.Z.; OKUN', A.Ya.; [illegible]

Spectrophotometric [illegible] cyanine and eriochrome azurol as reagents for indium and [illegible]. Uch. zap. Kursk. gos. ped. inst. no.11:137-142 '58. (MIRA 14:2)

1. Kafedra khimii Kurskogo gosudarstvennogo pedagogicheskogo instituta.
(Eriochrome azurol--Spectra)
(Cyanine--Spectra)

CHUBAROVA, M.V., KAMPOL'SKIY, I.Z.

Drop method of detecting yttrium with the help of eriochrome azurol. Uch. zap. Kursk. gos. ped. inst. no.11:143-149 '58. (MIRA 14:2)

1. Kafedra khimii Kurskogo gosudarstvennogo pedagogicheskogo instituta i kafedra analiticheskoy khimii Saratovskogo universiteta.
(Yttrium--Analysis) (Eriochrome azurol)

KASHKOVSKAYA, Ye.A.; MUSTAFIN, I.S.; ZAMPOL'SKII, N.Z.

Spectrophotometric determination of vanadium traces by means of aluminon. Uch. zap. Kursk. gos. ped. inst. no.11:150-157 '58. (MIRA 14:2)

1. Kafedra khimii Kurskogo gosudarstvennogo pedagogicheskogo instituta.
(Vanadium--Spectra) (Aluminon)

YAMPOL'SKIY, M.Z.

PHASE I BOOK EXPLOITATION SOV/5850

SOV/9-31-8(11)

Akademiya nauk SSSR. Institut geokhimii i analiticheskoy khimii imeni V. I. Vernadskogo. Komissiya po analiticheskoy khimii

Spektrofotometricheskiye i kolorimetricheskiye metody analiza (Spectrophotometric and Colorimetric Methods of Analysis) Moscow, 1958. [illegible] p. [illegible] Its: Trudy, tom. 8 (11) Errata slip inserted. 3,000 copies printed.

Resp. Ed.: I. P. Alimarin, Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: V. M. Pechkova; Tech. Ed.: [illegible]

PURPOSE: The publication is intended for chemists, particularly analytical chemists and geochemists.

COVERAGE: This collection of 29 articles is published as Volume VIII (XI) of the Transactions of the Committee on Analytical Chemistry at the [illegible] of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy, [illegible] Sciences USSR. The general subject of the volume is the [illegible] of spectrophotometric and colorimetric analysis. [illegible] the following topics may deserve special attention: the [illegible] absorption analysis, the sensitivity of the colorimetric methods of [illegible] organic analysis, the basic variations of the kinetic method of analysis, a [illegible] spectrophotometric investigation of heteropolyacids of germanium, a new colorimetric method of determining small quantities of thallium, a [illegible] metric method of determining uranium, spectrophotometric investigation of the behavior of oxidation-reduction indicators, a [illegible] optical-acoustical method of gas analysis, and a description of an [illegible] spectrophotometric gas analyzer. No personalities are mentioned. References are given at the end of each article.

TABLE OF CONTENTS:

'2/'

* Kursk State Pedagogical Inst.

YAMPOL'SKIY, M.Z.

Influence of the nature of the chromophore on the analytically functional group. Trudy kom. ana. khim. 11:5-12 '60. (MIRA 13:10)

1. Kurskiy gosudarstvennyy pedagogicheskiy institut.
(Functional groups) (Chromophores)

YAMPOL'SKIY, M.Z.

Photometric determination of trace amounts of indium. Report No. 1: Determination of indium in the presence of aluminum, iron, zinc, and cadmium with the reagent stilbazo. Trudy kom. anal. khim. 11:261-272 '60. (MIRA 13:10)

1. Kurskiy gosudarstvennyy pedagogicheskiy institut.
(Indium--Analysis) (Stilbazo)

YAMPOL'SKIY, M.Z.; GELLER, B.E.

Determination of acetone by sodium nitroprusside taking into account the particular kinetic features of the reaction. Trudy Kom.anal.khim 13:78-84 '63. (MIRA 16:5)

1. Kurskiy pedagogicheskiy institut.
(Acetone) (Sodium nitroprusside)

KALIKHOV, V.D.; YAMPOL'SKIY, M.Z.

Spectrophotometric study of lumogallion and its complex with gallium. Zhur. anal. khim. 20 no.12:1299-1305 '65.
(MIRA 18:12)

1. Kurskiy pedagogicheskiy institut. Submitted February 13, 1964.

SHUKHAT, S.B., inzh.; YAMPOL'SKIY, N.G., kand.tekhn.nauk

Transfer of brick factories under local administration from the seasonal to a year-round system of work as a potential for the increase of their labor productivity. Trudy NIIMestoppproma no.17:171-176 '62. (MIRA 16:5)
(Ukraine--Brick industry--Labor productivity) (Bricks--Drying)

YAMPOL'SKIY, N.G., kand.tekhn.nauk

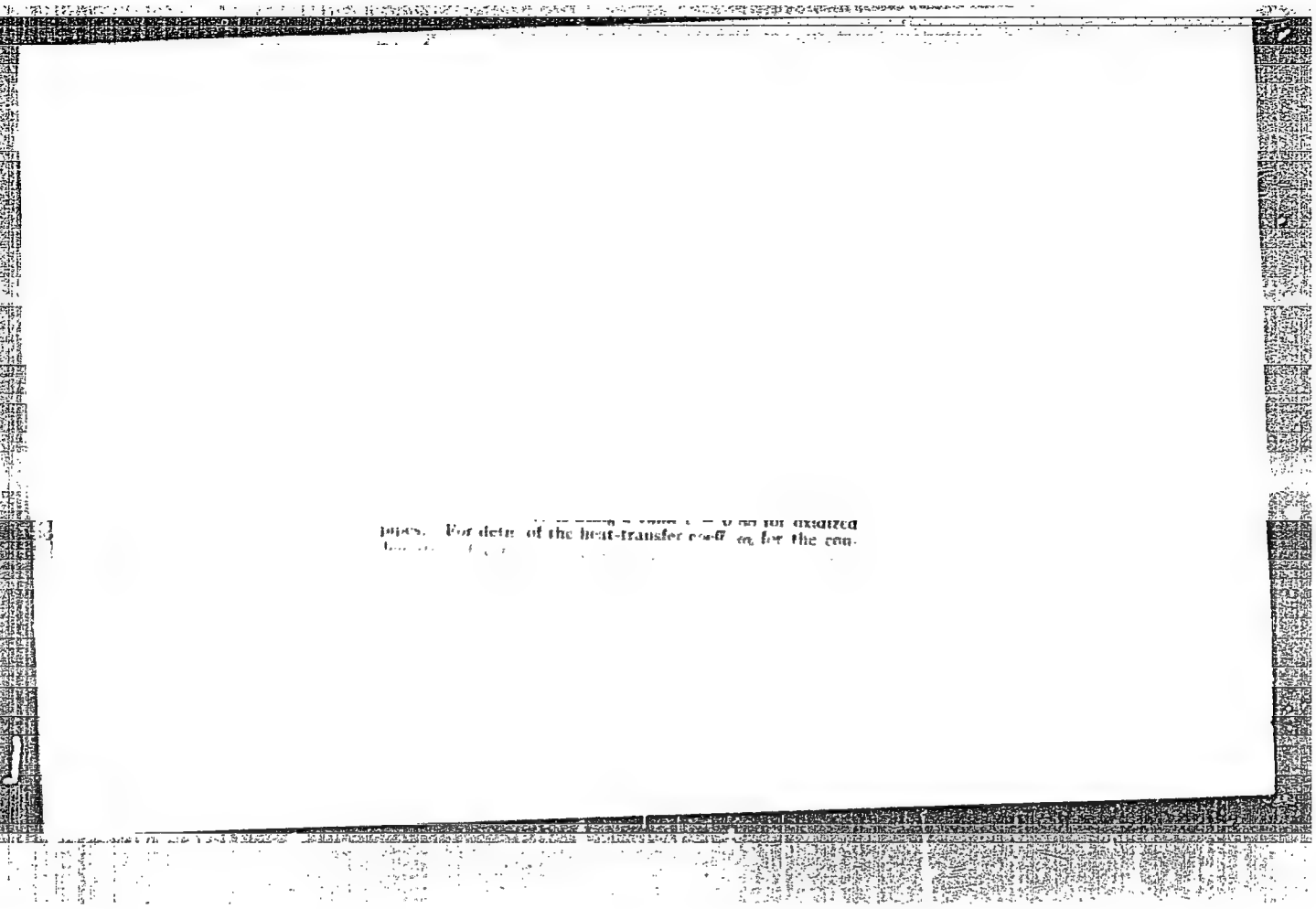
Use of steam tubular rotary dryers for drying milled peat.
Torf. prom. 38 no.4:22-25 '61. (MIRA 14:9)

1. Nauchno-issledovatel'skiy institut mestnoy i toplivnoy promyshlennosti Gosplana USSR.
(Peat--Drying)

TOLUBINSKIY, V.I.; YAMPOL'SKIY, M.G., nauchnyy sotrudnik

Effectiveness of using air for intensification of heat transfer in industrial vacuum-evaporators. Trudy Inst.tepl.AN URSR no.7: 48-55 '52. (MIRA 13:5)

1. Chlen-korrespondent AN USSR (for Tolubinskiy)
(Heat--Transmission) (Evaporating appliances)



YAMPOL'SKIY, N. G.

"Investigation fo the Problems of Heat Exchange in Vertical Condensers."
Acad Sci Ukrainian SSR, Inst Heat Power Engineering, Kiev, 1952
(Dissertation for the Degree of Candidate of Technical Sciences)

SO: Knizhnaya Letopis', No. 32, 6 Aug 55

FROYSHTETER, G.B.; YAMPOL'SKIY, N.G.

Mechanically fired furnace for small lignite lumps. Spirt. prom. 22 no.3:15-19 '56. (MLRA 9:11)

1. Ukrainskiy nauchno-issledovatel'skiy institut mestnoy i toplivnoy promyshlennosti.
(Furnaces) (Lignite)

FROYSHTETER, G.B.[Froishteter, H.B.], kand. tekhn. nauk;
YAMPOL'SKIY, N.G.[IAmpol's'kyi, N.H.], kand. tekhn. nauk

Burning of lumpy brown coal and milled peat in the furnaces of small boilers. Kompl. vyk. pal.-energ. res. Ukr. no.1: 308-324 '59. (MIRA 16:7)

1. Nauchno-issledovatel'skiy institut mestnoy i toplivnoy promyshlennosti Gosplana UkrSSR.
(Boilers)

TAMPOLISKIY, N.G., kand. tekhn. nauk; MIKHAYLOVICH, I.N., inzh.

Abrasive furnace for industrial steam boilers. Energ. i elektrifikatsiia. (MIRA 17:10)
prom. no.4:28-31 Oct '63.

SMOL'NIK, Yu.Ye.; YAMPOL'SKIY, N.G.; GUSLENKO, V.I.

Application of mechanical vibrations in the oxidation of technical paraffins to synthetic fatty acids. Khim. i tekh.topl. i masel 10 no.11:26-28 N '65. (MIRA 19:1)

1. UkrNIIgiproneft'.

YAMPOL'SKIY, N.Ya

Testing the crystallization of the second strike massecuite prepared with a low content of dry substances. (N. Ya. Yampol'skii) *Trudy Kiev. Tekhnol. Inst. Pishchevoi Prom.* 1953, No. 13, 47–9; *Referat. Zhur., Khim.* 1954, No. 49146.—Crystn. tests with such massecuite prepd. from a sirup with 90.8-91.6% dry matter showed that the clearing (planing) of such massecuite proceeds normally and the cooking time is reduced by 2–3 hrs. Sugar losses in the molasses by this method are the same as by the old one. M. Hoseh

YAMPOL'SKIY, N. Ya.

YAMPOL'SKIY, N. Ya.: Investigation of the proces of crystallization of 'utfel II', welded with reduced content of dry substances." Min Higher Education Ukrainian SSR. Kiev Technological Inst of the Food Industry imeni A. I. Mikoyan. Kiev, 1956
(Dissertation for the Degree of Candidate in Technical Sciences)

So: Knizhnava Letopis', No 17, 1956

YAMPOL'SKIY, N. Ye.

YAMPOL'SKIY, N. Ye.: "Firearm cranial wounds and surgical procedures with them". Khar'kov, 1955. Min Health Ukrainian SSR. Khar'kov Medical Inst. (Dissertations for the Degree of Doctor of Medical Sciences)

SO: Knizhnaya letopis', No. 52, 24 December, 1955. Moscow.

YAMPOL'SKIY, N. Ye.

YAMPOL'SKIY, N. Ye.: "Firearm skull-brain wounds and surgical tactics with them." Min Health Ukrainian SSR. Khar'kov Medical Inst. Khar'kov, 1956. (Dissertation for the Degree of Doctor in Medical Science)

Source: Knizhnaya letopis' No. 28 1956 Moscow

SOV/177-58-11-2/50

17(14)

AUTHOR: Yampol'skiy, N.Ye., Candidate of Medical Sciences

TITLE: Remote Results of the Surgical Treatment of Penetrating Bullet Wounds of the Cranium and Cerebrum.

PERIODICAL: Voyenno-meditsinskiy zhurnal, 1958, Nr 11, pp 8 - 10 (USSR)

ABSTRACT: The article is devoted to the study and evaluation of the remote results of treating penetrating wounds of the cranium and cerebrum surgically, the degree of compensation and restoration of the functional disturbances and the ability to work. N.K. Bogolepov and Yu.D. Arbatskaya, N.Ye. Zavadskiy, S.P. Popov and V.L. Dansker worked on this problem. The author bases his treatise on 198 operations on patients with wounds of the cranium and the cerebrum. The results obtained made the author conclude that in timely neurosurgical treatment and following rational neurotherapeutic treatment of cranial and ce-

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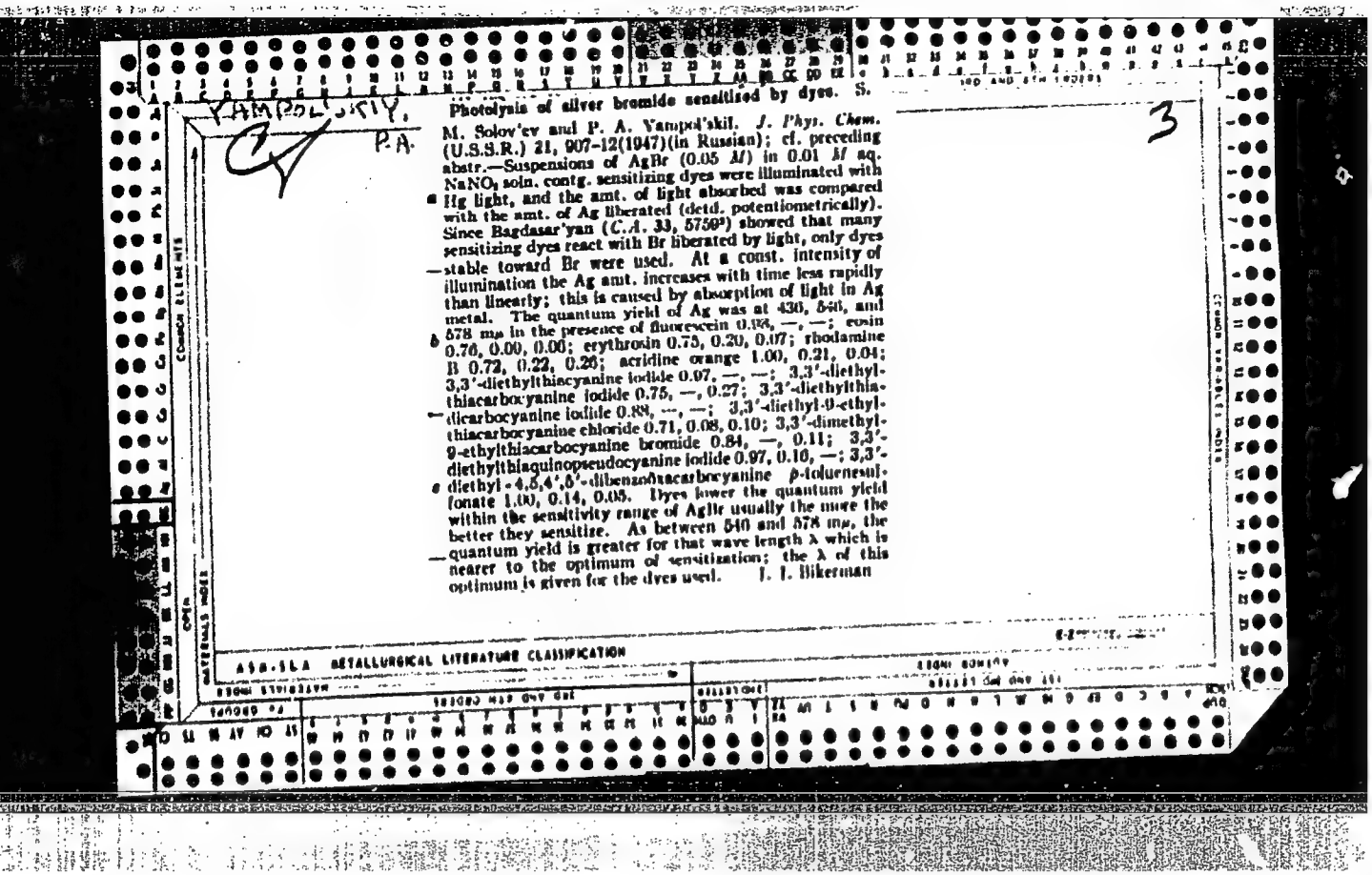
Photographic Abstracts YAMPOL'SKIY, P.A.

Preparation of Light-Sensitive Materials and Exposure

77.012 : 546.571.141 : 771.534.21

Photolysis of Silver Bromide. P. A. YAMPOL'SKII and S. M. SOLOV'EV. *J. Phys. Chem.* (*U.S.S.R.*), 21, 899-906, 1947.—Before the quantum yield ϕ of the photolysis of sensitized silver bromide can be determined, the ϕ of silver bromide containing free silver must be known, because silver is liberated during any photolysis and raises the sensitivity of silver bromide. This ϕ is 0.07 for 436 mμ and 0.05 for 578 mμ. The rate v of photolysis of silver bromide first increases when the transparency T of the silver bromide layer decreases because of formation of silver, but both v and T soon become constant after long exposures, e.g., 40 min., v slightly decreases. The constancy of T in spite of the continuing formation of silver probably means that light is absorbed mainly by particles of a definite size; their number does not increase indefinitely because, at later stages of the process, particles grow rather than their numbers. The transparency of photosensitive layers can be measured when the exposures are short. The results show that the light absorption by the sensitizing dye is far more important than that by silver as long as there are less than 5×10^{18} atoms of silver per 0.05 g.-mol. of silver bromide. A mercury lamp operating at 50 atmosphere was used for illumination. The emission spectrum of this lamp shows sharp spectral lines. This lamp therefore is preferable to a lamp operating at 100 atm., of which the continuous emission spectrum is almost as intense as the line spectrum. *Chem. Abs.*

1949-50



YAMPOL'SKIY, P.A.

Photolysis of silver bromide sensitized by dyes. S. M. Solov'ev and P. A. Yampol'skii. *J. Phys. Chem.* (U.S.S.R.) 21, 907–12(1947)(in Russian); cf. preceding abstr.—Suspensions of AgBr (0.05 *M*) in 0.01 *M* aq. $NaNO_3$ soln. contg. sensitizing dyes were illuminated with Hg light, and the amt. of light absorbed was compared with the amt. of Ag liberated (detd. potentiometrically). Since Bagdasar'yan (*C.A.* 33, 5759[3]) showed that many sensitizing dyes react with Br liberated by light, only dyes stable toward Br were used. At a const. intensity of illumination the Ag amt. increases with time less rapidly than linearly; this is caused by absorption of light in Ag metal. The quantum yield of Ag was at 430, 540, and 578 mμ in the presence of fluorescein 0.88, —, —; eosin 0.76, 0.00, 0.00; erythrosin 0.75, 0.20, 0.07; rhodamine B 0.72, 0.22, 0.26; acridine orange 1.00, 0.21, 0.04; 3,3'-diethylthiacyanine iodide 0.97, —, —; 3,3'-diethylthiacarbocyanine iodide 0.75, —, 0.27; 3,3'-diethylthiadicarbocyanine iodide 0.88, —, —; 3,3'-diethyl-9-ethylthiacarbocyanine chloride 0.71, 0.08, 0.10; 3,3'-dimethyl-9-ethylthiacarbocyanine bromide 0.84, —, 0.11; 3,3'-diethylthiaquinopseudocyanine iodide 0.97, 0.10, —; 3,3'-diethyl-4,5,4',5'-dibenzothiacarbocyanine *p*-toluenesulfonate 1.00, 0.14, 0.05. Dyes lower the quantum yield within the sensitivity range of AgBr usually the more the better they sensitize. As between 540 and 578 mμ, the quantum yield is greater for that wave length λ which is nearer to the optimum of sensitization; the λ of this optimum is given for the dyes used. J. I. Bikerman

A58-51A METALLURGICAL LITERATURE CLASSIFICATION

Photographic Abstracts

YAMPOL'SKII, P. A. — Sensitizing and Sensitometry

771.534.21

99

Optical Sensitization of Silver Halide. VII. Absorption Spectra of Sensitizing Dyes in the Crystalline State. S. M. SOLOV'EV and P. A. YAMPOL'SKII. *J. Phys. Chem. (U.S.S.R.)*, 21, 1237-1241, 1947.—Because sensitizing dyes in a photographic emulsion may be present as crystal-like aggregates, the absorption spectra of sensitized emulsions are compared with those of dye crystals. Crystals were spread on glass plates, and their reflection R was determined within the whole visible range. Special experiments showed that $1/R$ varied with the wavelength λ as did the absorption coefficient. The dependence of $1/R$ on λ was more pronounced the rougher was the crystal layer. The maximum of sensitization S and of $1/R$ coincide for phloxin (at 575 mμ). The $1/R$ of erythrosin has a maximum at 572 mμ corresponding to the maximum of S in emulsions containing much erythrosin, and another maximum at 525 mμ, which is observed also in aqueous erythrosin solutions. The maxima of $1/R$ of eosin (528 and 563 mμ) are shifted toward red compared with the maxima of S. An agreement between the maxima for $1/R$ and S is observed for 3,3'-diethyl-9-ethylthiacarbocyanine chloride and 3,3'-dimethyl-9-ethyl-5,6,5',6'-dibenzothiacarbocyanine chloride. The incomplete agreement between the dependence on λ of $1/R$ and S may be due to dependence of S on the concentration of sensitizer in the emulsion, to deviation between $1/R$ and absorption, and to orientation of dye crystals on silver bromide.

Chem. Abs

1947-1758

YAMPOL'SKII, P.A.

Discovery of short-life isomers. P. A. Yampol'skii, O. I. Leipunskii, M. Ya. Gen, and A. M. Tikhomirov. *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 19, 338–42(1955).—A current of deuterons of 10 ma. at a voltage of 150 kv. bombarded a Zr target satd. with T producing 14-m.e.v. neutrons. The γ-radiation of the target was picked up by a scintillation counter with an org. crystal. γ-Rays were discovered with half-lives of 0.46–1.5 millisec., 5.6 millisec., 27–30 millisec., and 3–4 sec. γ-Rays corresponding to short life isomers were also observed on bombarding targets of Pb and Bi with 14.7-m.e.v. neutrons. This γ-radiation was attributed to Pb^{207} and Bi^{209}. S. Pakswer

(3)

YAMPOL'SKIY, P.A.

CARD 1 / 2 PA - 1472

SUBJECT USSR / PHYSICS
AUTHOR LEJPUNSKIJ,O.I., MILLER,V.V., MOROZOV,A.M.,JAMPOL'SKIJ,P.A.
TITLE The Isomers with Short Period obtained by Proton Bombardment.
PERIODICAL Dokl.Akad.Nauk, 109, fasc.5, 935-937 (1956)
Issued: 10 / 1956 reviewed: 11 / 1956

The present work forms part of the general program of research concerning the discovery of short-lived isomers created on the occasion of nuclear reactions. Here the nuclei were excited by an impulselike bundle of 20 MeV protons. The targets of substances to be examined were located in a vacuum at an angle of 45° with respect to the bundle. Short-period γ -radiation occurring as a result of proton bombardment was recorded by means of a scintillation counter and β-radiation was recorded by means of a counter with a stilb-crystal. The impulses of the counters were amplified and discriminated by means of an integral amplitude analyzer, after which they impinged upon the screen of a special cathode oscillograph with "standing" development, and were then photographed.
On the occasion of the irradiation of Be a noticeable β-activity was noticed with $T_{1/2}$=0,85 ± 0,15 sec. This activity may be ascribed to the Li^8($T_{1/2}$=0,87±0,02 sec) created on the occasion of the reaction $Be^9(p,2p)Li^8$. The threshold of this reaction computed from the masses is 18,7 MeV. In the course of further tests new γ -activities, which had formerly not been noticed, were found, which belong to hitherto unknown isotopes. The characteristics of these γ -activities are shown in a table. Apart from half lives, the estimated yields of these γ -activities are given. The elements concerned are Ti, Cd, Ta, Tl, Pb, Bi. Also on the occasion

Dokl.Akad.Nauk, 109, fasc.5, 935-937 (1956) CARD 2 / 2 PA - 1472

of the bombardment of Cu, Mo, CaO a marked short-period activity ($T_{1/2}$ - some milliseconds) was found. On the occasion of the irradiation of Co, Rh and Au no short-period activities were found to exist. Longwave activities are only weakly expressed.

The short-period γ-irradiation observed is probably connected with the excitation of isomeric states of the isotopes obtained on the occasion of reactions with protons. The work by S.D.SOFTKY, UCRL-2754, Nucl.Sci.Abstr., 9, No 2, 95 (1955), which appeared after publication of the present work, is mentioned.

The value of $T_{1/2}$ obtained here on the occasion of the proton bombardment of Pb and Bi indicates that on the occasion of this reaction Bi^{208} after the reaction $Pb^{209}(p,n)$ or $Bi^{209}(p,pn)$ is obtained. In tantalum isomeric activity may be connected either with the isotopes Tl^{202} and Tl^{204} (reaction p,pn) or with Pb^{203} and Pb^{205} (reaction p,n). The study of the excitation curve will probably contribute towards finding the correct type of reaction.

INSTITUTION: Institute for Chemical Physics of the Academy of Science in the USSR.

Yampol'skiy, P.A.

PA - 2705

AUTHOR: LEYPUNSKIY,O.I., MOROZOV,A.M., MAKAROV,YU.V.
YAMPOL'SKIY,P.A.

TITLE: New Short-Lived Isomeres within the Millisecond Domain.
(Novyye korotkoperiodnyye izomery v millisekundnoy oblasti, Russian)

PERIODICAL: Zhurnal Eksperim. i Teoret.Fiziki, 1957, Vol 32, Nr 2, pp 393-394 (U.S.S.R.)
Received: 5 / 1957 Reviewed: 7 / 1957

ABSTRACT: The authors investigated such isomeric states as occur on the occasion of reactions with 20 MeV protons. Data on new isomeric activities of some elements were determined recently. The method used for the investigation of these short-lived activities were described in a previous work (O.I.LEYPUNSKIY et al., Doklady Akademii Nauk, 1956, Vol 109, Nr 935). In the case of the measurements described here the energy of γ-radiation was determined by means of a photomultiplier FEU-19 with NaJ(Tl) crystals and a one-channelled differential discriminator. Also the control tests are mentioned.
A table contains the half-value periods found here and the values of the energy of γ-radiation of the newly discovered activities. The half-value periods found on the occasion of control tests with different compounds of the same element agree well among

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21 (3)
AUTHORS: Kogan, A. M., Petrov, G. G., Chudov, L. A., Yampol'skiy, P. A.

SOV/89-7-4-6/28

TITLE: The Tissue Dose of Neutrons

PERIODICAL: Atomnaya energiya, 1959, Vol 7, Nr 4, pp 351-362 (USSR)

ABSTRACT: The present paper deals with the determination of the dosimetric properties of medium-energy neutrons, viz, for thermal neutrons and for neutrons with the energies of 100 ev; 1; 30; 240; 500 kev, and 1 Mev by using the results obtained by means of computers and those of experimental work performed by A. M. Kogan et al (Refs 6, 7). A broad beam of monoenergetic neutrons impinges perpendicularly upon the plane surface of a semi-infinite space, which is filled with a biological tissue. The neutrons impinging upon the tissue surface are partly reflected or scattered, or they are absorbed by the tissue, on which occasion they transfer their energy to the tissue. The main part of the neutrons is absorbed and is scattered within the first 10-15 cm of the tissue. A table shows the chemical composition of the tissue investigated by the authors. The following reactions of neutrons with energies of up to 1 Mev with the tissue elements are possible: (1) Elastic scattering

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The Tissue Dose of Neutrons

on the hydrogen nuclei. (2) Elastic scattering on heavy nuclei (carbon, nitrogen, oxygen). (3) Absorption on hydrogen nuclei with radiation of a γ-quantum having an energy of 2.19 Mev. (4) Absorption on nitrogen nuclei according to the reaction $N^{14}(n,p)C^{14}$ (the energy of the proton here amounts to 0.62 Mev). (5) Radiation capture on nitrogen according to the reaction $N^{14}(n,\gamma)N^{15}$, where, in the case of each capture, an energy of 10.8 Mev is radiated. In the first part of the present paper the energy is calculated which is left over by the neutrons in the tissue in the case of elastic scattering. For this purpose, Boltzmann's kinetic equation was solved by employing numerical methods by means of the electronic computer of the AS USSR. For the determination of the total neutron dose it is necessary, in addition, to take the neutron dose produced in the capture of neutrons into account. Computations are followed step by step. Two tables contain data concerning the flux of the thermal neutrons as well as the distribution of the absorbed energy and the energy albedo. In the tissue, neutrons with energies of 1 Mev and less are mainly scattered on hydrogen. The spatial energy distributions of the recoil

The Tissue Dose of Neutrons

protons in 1 cm^3 paraffin and in a tissue agree with respect to range units, and the absolute values are proportional to the density of hydrogen nuclei in these substances. In the next two parts the tissue dose due to the recoil protons of the reaction $N^{14}(n,p)$ and the dose due to absorption of γ-radiation are calculated. For the purpose of determining the biological dose the amount of the tissue dose must be multiplied by the coefficient of the relative biological efficiency (according to the nature of the radiation). According to the authors' opinion, 5 is the most suitable value to select for this coefficient. From the maximum values of the biological doses corresponding to the depth of the tissue, the relative values of the biological harmfulness per flux unit of neutrons of various energies were then calculated. There are 10 figures, 4 tables, and 20 references, 5 of which are Soviet.

SUBMITTED: April 2, 1959

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SOV/89-7-4-17/28

21(8)
AUTHORS: Kogan, A. M., Petrov, G. G., Chudov, L. A., Yampol'skiy, P. A.

TITLE: The Reflection by Paraffin and Water of Neutrons With Different Energies

PERIODICAL: Atomnaya energiya, 1959, Vol 7, Nr 4, pp 385-386 (USSR)

ABSTRACT: In the course of the solution of the problem of the biological effect of neutrons it is of great importance to know such quantities as characterize the reflection of neutrons of different energies by a tissue. Besides, the dependence of the reflection coefficient on the geometrical conditions of the beam must be known. The authors therefore carried out measurements of the amount and the angular dependence of neutron reflection by a tissue-like substance within a wide energy interval. In these experiments the ratio between the flux of neutrons of all energies coming from the medium and the inciding flux of the neutrons to be investigated was determined. It was thus necessary to find out what portion of the total number of inciding neutrons is absorbed in the substance. The authors employed two methods for measuring reflection: The first method

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is used for neutron sources of small dimensions (nearly punctiform) and is based upon the following: In a large container filled with water, on the center of which the source was located, the radial distribution of the density of the absorption was measured by means of manganese foils. Integration of foil activity over the entire volume of the container then made it possible to determine the strength of the source in relative units, which are connected with the activity of the standard foil. By means of this method the reflection of neutrons of a polonium-beryllium source (mean energy 5 Mev) and of the photo-neutrons of a sodium-beryllium source (0.83 Mev), a sodium-deuterium source (0.22 Mev) and of an antimony-beryllium source (25 kev) on paraffin was measured. For measurements carried out on the reactor a second method was employed. For the relative determination of the inciding flux a collimated neutron beam from the reflector of a nuclear reactor was introduced into a device, which, for the neutrons, plays the part of an absolutely black body. This device had the shape of a thin-walled tube ending in a hollow sphere which is surrounded by a thick layer of a weak aqueous solution of manganese chloride. The activity of the solutions was determined from the standard samples of

metallic manganese. The results of all measurements are given by the following tables:

Neutron energies	Paraffin reflection coefficient	Neutron energies	Reflection coefficient of water
5 Mev	0.06	2.7 kev	0.47
0.83 Mev	0.12	130 ev	0.56
0.22 Mev	0.19	5 ev	0.71
25 kev	0.38	thermal	0.58

The dependence of the reflection coefficient on the angle of incidence of the neutrons:

Neutron energies	Angle of incidence					
	0°	15°	30°	45°	60°	75°
5 Mev	0.06	0.110	0.21	0.32	0.50	0.74
0.22 Mev	0.19	-	-	0.44	0.61	-
5 ev	0.71	-	0.74	-	0.80	-
thermal	0.58	-	0.63	-	0.76	-

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The Reflection by Paraffin and Water of Neutrons With Different Energies

SOV/89-7-4-17/28

The dependence of the albedo on the angle of incidence θ may be described for all energies investigated by the relation $(1 - \alpha)_\theta = (1 - \alpha)_{\theta = 0} \cos \theta$. The authors thank undergraduate degree student of the Leningradskiy politekhnicheskiy institut (Leningrad Polytechnic Institute) G. P. Gordeyev, who took active part in the measurement of the albedo of slow neutrons. There are 2 tables and 2 references.

SUBMITTED: April 2, 1959

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SOV/89-7-4-18/28

21(8)
AUTHORS: Kogan, A. M., Petrov, G. G., Chudov, L. A., Yampol'skiy, P. A.

TITLE: Neutron Absorption Density Distribution in Paraffin

PERIODICAL: Atomnaya energiya, 1959, Vol 7, Nr 4, pp 386-388 (USSR)

ABSTRACT: A tissue dose due to neutrons is determined partly by the energy liberated within the tissue in neutron capture. According to the initial neutron energy, this part of the tissue dose will make a different contribution to the total dose. Thus, for neutrons with an initial energy of some kev, the tissue dose is determined practically entirely by the energy liberated in capture. For the neutrons with an initial energy of 1 Mev the essential part of the dose is determined by that energy which is scattered during the slowing-down process by the neutrons. In order to determine the capture component of the neutron dose, the spatial distribution of neutron absorption in paraffin (which simulates a biological tissue) was investigated. These measurements were carried out during the perpendicular incidence of a broad beam of neutrons upon a plane paraffin surface. The paraffin block had the shape of a rectangular parallelepiped of

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40.40.60 cm. The neutrons impinged upon the surface of 40.40 cm. Neutron density was measured by means of thin manganese foils. In these experiments the depth distribution of the absorption density of the inciding neutrons with the following energies was measured: 1. The thermal neutrons were filtered through cadmium of 1 mm thickness out of a beam emerging from the channel of a nuclear reactor. 2. Neutrons with $\sim$ 5 ev were filtered out of a beam of resonance neutrons at a nuclear reactor by means of a combination of a boron- and a cadmium filter. 3. Photoneutrons of an antimony-beryllium source with an energy of 25 kev. 4. Photoneutrons of a sodium-deuterium source with an energy of 220 kev. 5. Photoneutrons of a sodium-beryllium source with the energy of 0.83 Mev. 6. The neutrons of the reaction $H_1^2(d,n)He_2^3$ with the energy of 2.9 Mev. 7. The neutrons of a polonium-beryllium source with the mean energy of 5 Mev. The maximum statistical error in measuring the activity of the foils was $\sim$ 3%. The results of these measurements are shown by a diagram. The existence of a maximum, which shifts into the interior of the paraffin with increasing energy is characteristic of all curves.

In the transition of thermal neutrons to thermal deuterons with an energy of several ev, the maximum shifts abruptly from 0.5 to 2.5 cm. This may be due to the fact that maximum absorption probably takes place in a depth of the order of one transport-length of the range of the inciding neutron. Also the comparatively slow shifting of the maximum into the interior of the paraffin with an energy increase to 5 Mev may be explained by the weak dependence of the scattering cross section in this energy interval. The diagram mentioned indicates a tendency towards increasing on the part of the ratio between absorption in the maximum and absorption on the surface. The velocity of absorption density decrease decreased with an increase of the energy of the inciding neutrons. There are 1 figure and 1 reference.

SUBMITTED: April 2, 1959

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SOV/56-36-3-60/71

21(1)
AUTHORS: Morozov, A. M., Yampol'skiy, P. A.

TITLE: The New Short-period Isomers As^{75m} and Ga^{70m} Obtained in Reactions With Fast Protons (Novyye korotkoperiodnyye izomery As^{75m} i Ga^{70m}, poluchayushchiyesya pri reaktsiyakh s bystrymi protonami)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 3, pp 950 - 951 (USSR)

ABSTRACT: In the present "Letter to the Editor" the authors give a report on experimental investigations of short-lived isotopes obtained by reactions with fast protons. By irradiation of germanium with fast protons the authors found an activity with $T_{1/2} = 17.5 \pm 2.0$ msec at $E_\gamma = 0.31$ Mev, which was ascribed to the As^{75m} according to the reaction $Ge^{76}(p,2n)As^{75m}$. (As to experiments cf. references 1,6,7,8). As a proton source the authors used the linear accelerator of the FTI AN USSR (Physico-Technical Institute of the AS UkrSSR). Exact determinations resulted in E= 0.30 ± 0.01 Mev and

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The New Short-period Isomers As^{75m} and Ga^{70m} Obtained in Reactions With Fast Protons SOV/56-36-3-60/71

$T_{1/2}$= 16±1 msec for As^{75m}. Also in the case of an irradiation of arsenic targets with fast protons an intense radiation with E_γ= 0.29±0.01 and $T_{1/2}$= 16± 1 Mev was found, with a threshold of the reaction amounting to ~ 13 Mev. According to reference 5 this is in agreement with the values (E_γ=0.305 Mev, $T_{1/2}$= 17 msec; E2-transition, 402 level) for As^{75m} and is ascribed to the reaction $As^{75}(p,p')As^{75m}$. Also in the case of a bombardment of gallium targets with fast protons the authors found a short-lived γ-radiation (E_γ=0.19±0.01 Mev, $T_{1/2}$=19±1 msec); a bombardment of germanium with 14 Mev neutrons lead to a radiation with E_γ = 0.17±0.01 Mev, $T_{1/2}$= 16± 1 msec. These activities may be ascribed to the reactions $Ge^{70}(n,p)Ga^{70m}$ (E3-transition) and $Ga^{71}(p,pn)Ga^{70m}$ (cf. Ref 9). The authors finally thank O. I. Leypunskiy for his assistance and collaboration, Yu. V. Makarov for discussions, N. M. Meleshin and O. B. Likin for their assistance, and further also K. D. Sinel'nikov,

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The New Short-period Isomers As^{75m} and Ga^{70m} Obtained in Reactions With Fast Protons SOV/56-36-3-60/71

A. K. Val'ter, A. P. Klyucharev and A. M. Smirnov for taking part in this work. There are 11 references, 6 of which are Soviet.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute for Chemical Physics of the Academy of Sciences, USSR)

SUBMITTED: November 27, 1958

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SOV/56-36-4-13/70

21(7)
AUTHORS: Glagolev, V. L., Kovrizhnykh, O. M., Makarov, Yu. V., Yampol'skiy, P. A.

TITLE: Isomers With Millisecond Periods Formed in Reactions With Neutrons With Energies of 14 Mev (Izomery s millisekundnymi periodami, voznikayushchiye pri reaktsiyakh s neytronami s energiyey 14 MeV)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 4, pp 1046-1057 (USSR)

ABSTRACT: In the present paper the authors report on an investigation of the short-lived (10^{-3} - 10^{-1} sec) γ-radiation occurring in reactions with the participation of 14 Mev neutrons. Investigations were carried out of Li, C, Na, Mg, Al, S, Ca, Sc, Ti, V, Mn, Co, Ni, Zn, Ga, Ge, As, Se, Br, Rb, Cu, Fe, Sr, Y, Zr, Nb, Mo, Pd, Cd, In, Sn, Te, La, Ce, Ta, W, Au, Hg, Tl, Pb, Bi, Th, and U. In Mg, Al, Ge, As, Y, In, Pb, and Bi γ-activities of such small half-lives were found. The apparatus and the measuring method are first described in detail. The neutrons used originated from the reaction $T(d,n)He^4$ and were accelerated

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Isomers With Millisecond Periods Formed in Reactions With Neutrons With Energies of 14 Mev

in an accelerator of 500 kv (cf Ref 6). Irradiation was in pulses at the rate of ~1 pulse per second. The square pulses received on the target had a duration of 1.3 msec and amplitudes of up to 2 ma; $2 \cdot 10^7$ neutrons/pulse were emitted. The neutron monitor worked with a photomultiplier FEU-19M with scintillator which was sensitized for neutrons (ZnS in plexiglass), and with the PS-10000 device "Floks". For measuring γ-radiation a NaJ(Tl)-crystal in a standard duraluminum container with the photomultiplier FEU-S was used. The devices and methods for the determination of the half-lives of isomers and for estimation of the formation cross section for isomers are discussed in detail. Figure 1 shows a block scheme of the entire device, figures 3,6,7,11,12 show spectra recordings. Measuring results are discussed individually for each element. The most important are contained in the following table:

Sample	γ-energy [Mev]	half-life [msec]	cross section [10^{-24} cm^2]	suggested reaction
Mg	0.47±0.01	20±1	0.08	$Mg^{24}(n,p)Na^{24m}$
Al	0.47±0.01	20±1	0.04	$Al^{27}(n,\alpha)Na^{24m}$

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Sample	γ-energy [Mev]	half-life [msec]	cross section [10^{-24} cm^2]	suggested reaction
Ge	0.17±0.01	16±1	0.3	-
As	0.28±0.01	17±1	0.13	$As^{75}(n,n')As^{75m}$
Y	0.24±0.01	14±1	-	$Y^{89}(n,n')Y^{89m}$ or $Y^{89}(n,2n)Y^{88m}$
In	0.32±0.01	42±2	0.8	$In^{115}(n,2n)In^{114m}$
Pb	0.48±0.01; 0.94±0.02	5±0.5	-	$Pb^{206}(n,2n)Pb^{205m}$
	0.58±0.01; 1.04±0.03	8.10^2±1.5.10^2	1.5	$Pb^{208}(n,2n)Pb^{207m}$ $Pb^{207}(n,n')Pb^{207m}$
Bi	0.48±0.01; 0.86±0.02	2.7±0.3	0.6	$Bi^{209}(n,2n)Bi^{208m}$

The authors finally thank O. I. Leypunskiy for his great help, and O. B. Likin, N. M. Meleshin, N. K. Parshenkov, V. A. Sha-

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SOV/56-36-4-13/70

Isomers With Millisecond Periods Formed in Reactions With Neutrons With Energies of 14 Mev

bashov, Yu. Ya. Lapitskiy, A. V. Gusev, V. S. Ionov, and D. F. Veprintsev for their collaboration. There are 12 figures, 1 table, and 21 references, 10 of which are Soviet.

SUBMITTED: October 21, 1958

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86744

6.4780
6.3200
3.5800 (1043, 1273, 1282)

S/120/60/000/006/019/045
E032/E314

AUTHORS: Kovrizhnykh, O.M., Likin, O.B. and Yampol'skiy, P.A.

TITLE: A Study of Commercially Available Photomultipliers Operated under Forced Conditions

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No. 6, pp. 69 - 72

TEXT: The aim of the present work was to investigate the possibility of using commercially available photomultipliers (of Soviet manufacture) in the measurement of high-intensity light pulses 10^{-5} - 10^{-4} sec long without amplification. Photomultipliers were chosen whose nominal ratings indicated that they were capable of withstanding increased applied HT's and relatively large currents. The particular photomultipliers investigated were ФЭУ-33 (FEU-33), ФЭУ-11 (FEU-11) and ФЭУ-12 (FEU-12), all of which were described by Vil'dgrube and Berkovskiy (Refs. 1, 2). The photomultipliers were investigated using the circuit shown in Fig. 1. The signal amplitude across the load of the photomultipliers was

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measured with the aid of oscillographs (type НО-4 (IO-4) or 25-И (25-I)). The neon lamp МН-8 (MN-8) was used as the source of light. It was capable of producing light flashes 0.3 and 3-10 μs long with a repetition frequency of 50 to 200 cps. The intensity of the flashes was measured using calibrated neutral filters. In some of the experiments the instrument designated as СФР (SFR) (Shnirman et al, Ref. 4) was employed. In this way, light pulses 4 - 70 μs long were produced with a repetition frequency of 1300 - 75 cps. In the case of the FEU-33 photomultiplier it was found that HT's of less than 4 000 V were necessary if breakdowns were not to take place. It was also found that the maximum current which could be safely drawn was about 400 mA. The maximum output current (through a 150 Ω load resistor) was obtained by distributing the potential differences between the dynodes so that the potential differences between the first eleven

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dynodes were greater than the potential differences between the last four electrodes, and also by reducing the voltage on the last dynode. During the tests on the FEU-33 photomultipliers an ageing effect was found to be present, i.e. the amplitude of the output pulse across the load of the photomultiplier decreased with time and tended to a certain limiting value for a given intensity repetition frequency and duration of light pulses. It was established that this limiting value decreases with increasing intensity, repetition frequency and duration of the light flashes. After a period of "rest", the amplitude of the output pulse increases and the sensitivity of the photomultiplier is restored to the original value after a certain period of time. Two types of ageing were found, namely, a slow ageing effect which gradually becomes more pronounced with the number of light flashes incident on the photomultiplier cathode, leading to a reduction in the amplitude of the output pulse, towards its end.

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The second type of ageing is a "fast" effect leading to a reduction in the amplitude of the pulse amplitude towards its end and re-establishment of this amplitude at the beginning of the next flash. The FEU-12 photomultipliers were investigated under similar conditions. The maximum output amplitude was obtained with a total HT across the tubes of 2 800 V, the voltage distribution along the dynodes being as follows: U_1 = 224 V; U_2 = 176 V; U_3 = 176 V; ... U_8 = 176 V; U_9 = 210 V; U_{10} = 325 V; U_{11} = 225 V and U_{12} = 340 V. The maximum current corresponding to the linear part of the output voltage-intensity curve was 400 mA. The ageing effect was not present in these multipliers. For this reason, the FEU-11 and FEU-12 photomultipliers can be used to study both single and periodic light flashes, having durations up to 10^{-5} sec. The maximum current obtained from

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these photomultipliers was about 700 mA but this value no longer lies on the linear part of the curve. The maximum currents corresponding to the linear part of the output voltage versus intensity curve are as follows: FEU-33 200 mA, FEU-11 and FEU-12 400 mA, the slope of the straight lines being independent of the duration of the pulses.

Acknowledgments are expressed to N.K. Parshenkov for assistance in the work.

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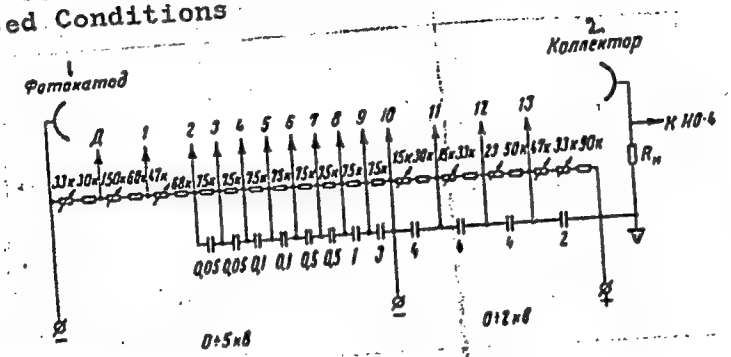
E032/E314

A Study of Commercially Available Photomultipliers Operated under Forced Conditions



There are 7 figures and 4 Soviet references.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics of the AS USSR)

SUBMITTED: October 6, 1959

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84395

S/056/60/039/004/013/048
B004/B070

24.6720

AUTHORS: Morozov, A. M., Remayev, V. V., Yampol'skiy, P. A.

TITLE: Five New Millisecond Isomers Produced in Nuclear Reactions With 19.2-Mev Protons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 4(10), pp. 973-985

TEXT: The present work is the continuation of research made into the short-period isomers produced by fast proton reactions. The authors describe the control of the beam intensity, the establishment of the radiation of short-period isomer, and the determination of the energy and half-life of the radiation by means of an apparatus schematically described in Fig. 1. The source of the 19.2-Mev protons was the linear accelerator of the FTI AN USSR (Institute of Physics and Technology of the AS UkrSSR). The identification of the isotope is explained to whose nuclear reaction the isomer level is to be ascribed. Moreover, the identification of the type of reaction which leads to the formation of

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Five New Millisecond Isomers Produced in Nuclear Reactions With 19.2-Mev Protons

the isomer, the determination of the cross section of reaction, and the estimate of the relative yield of the radiation of the isomer from thick targets are explained. The authors mention the following results of their experiments: By irradiation of Sc_2O_3, a short-period emitter with $E_\gamma = (0.28\pm0.01)$ Mev, $T_{1/2} = (5.8\pm0.4)$ msec was observed. Fig. 2 shows the spectrum of gamma radiation; Fig. 3 shows the decay curve of the short-period isomer. $Sc^{45}(p,n)Ti^{45m}$ is suggested as the most probable reaction. Fig. 4 shows the yield of the activity of Ti^{45m} from a thick Sc_2O_3 target as a function of the proton energy. Two lines with $E_{\gamma1} = (0.25\pm0.01)$ Mev, $E_{\gamma2} = (0.40\pm0.01)$ Mev were measured in niobium. For $E_{\gamma2}$, $T_{1/2} = (5.7\pm0.3)$msec; for $E_{\gamma1}$, $T_{1/2} = 4.8$ msec approximately. Samples with different enrichment of the individual isotopes were used for cadmium (Table 1). The observed isomer level with $E_\gamma = (0.32\pm0.01)$ Mev, $T_{1/2} = (42.2\pm2.0)$msec corresponds to the reaction $Cd^{114}(p,n)In^{114m}$. Fig. 5 shows the excitation function of the activity of In^{114m}. The

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identity of the radiation characteristic of Cd and In lead the authors to the conclusion that the same isomer is formed on the irradiation of indium according to the reaction $In^{115}(p,pn)In^{114m}$. La_2O_3 gave a short-period gamma radiation with a large yield (Figs. 6 - 9). $E_{\gamma 1}$ = (0.30±0.01) Mev, $E_{\gamma 2}$ = (0.80±0.01) Mev, $E_{\gamma 3}$ = (1.04±0.01) Mev. $T_{1/2}$ was (9.2±0.5) msec for all of the three lines. This reaction is said to be caused by reaction $La^{139}(p,2n)Ce^{138m}$. For Nd_2O_3, two gamma lines with $E_{\gamma 1}$ = (0.21±0.01) Mev, $E_{\gamma 2}$ = (0.43±0.01) Mev, and $T_{1/2}$ = (2.2±0.2) msec were measured. No identification was undertaken. The sample holds for the short-period radiation found on the irradiation of osmium: E_γ = (0.32±0.01) Mev, $T_{1/2}$ = (10±0.6)msec. Irradiation of tantalum are two lines with (0.24±0.01 and (0.32±0.01) Mev, $T_{1/2}$ = 5.5±0.3 msec according to the reaction $Ta^{181}(p,2n)W^{180m}$. The experimental data are given in Table 2. The authors mention papers by Yu. V. Makarov, A. P. Morozov (Ref. 12), V. I. Glagolev et al. (Ref. 2), B. S. Dzhelepov.

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Five New Millisecond Isomers Produced in Nuclear Reactions With 19.2-Mev Protons

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B004/B070

L. K. Pekar (Ref. 20). They thank A. P. Klyucharev for his interest in the work, A. M. Smirnov for the smooth working of the accelerator, and the technician V. T. Deren'ko for assistance in the experiments. There are 9 figures, 2 tables, and 24 references: 14 Soviet, 7 US, 1 Canadian, 1 British, and 1 Dutch.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences, USSR), Fiziko-tekhnicheskiy institut Akademii nauk USSR (Institute of Physics and Technology of the Academy of Sciences, UkrSSR)

SUBMITTED: May 23, 1960

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S/056/60/039/006/026/063
B006/B056

Inst. Khimicheskoy fiziki Akad. nauk SSSR

AUTHORS: Glagolev, V. L., Morozov, A. M., Yampol'skiy, P. A.

TITLE: Reactions Leading to the Formation of the Isomer Pb^{205m}

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 6(12), pp. 1621 - 1624

TEXT: It was the aim of the authors to investigate more closely the characteristics of the short-period gamma radiation emitted from thallium irradiated by 19.2-Mev protons and from lead, irradiated by 14.7-Mev neutrons, and to prove that this radiation must be ascribed to the isomer Pb^{205m}. The experimental method is described in an earlier paper (Ref.5). From a multiple of measurements the energy of this short-period radiation could be determined as (0.97 ± 0.01)Mev; however, in the spectrum of this radiation also lines with 0.73 ± 0.01 and (0.27 ± 0.02)Mev may be observed. Investigation is rendered more difficult because of the considerable background. The half-life of the radiation with 0.97 Mev could be determined as (5.2 ± 0.3)msec, and it was shown that this isomeric radiation occurs in the reaction of Tl^{205} with

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Reactions Leading to the Formation of the Isomer Pb^{205m}

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B006/B056

protons. The minimum proton energy at which it occurs was determined as (7.7 ± 0.4)Mev. The data obtained can be explained only by assuming that the isomer is formed according to the reaction $Tl^{205}(p,n)Pb^{205m}$. With a 32.3 mg/cm^2 thick thallium target, the cross section of the reaction was determined as $\sigma_m = (20 \pm 4)$mb for an energy of 19.2 Mev. Further investigations of the short-period radiation were made by bombarding lead by 14.7-Mev protons; in these experiments, the half-life of radiation was determined as (5.0 ± 0.2)msec, the maximum intensity corresponded to an energy of (0.94 ± 0.02)Mev. Further investigations showed that this reaction was $Pb^{206}(n,2n)Pb^{205m}$; its cross section was determined as $\sigma_m = (1.1 \pm 0.2)$b. The results are compared with those obtained by other authors and are discussed. The authors thank A. P. Klyucharev for his interest and the accelerator team of the FTI AN USSR (Institute of Physics and Technology AS UkrSSR) as well as M. V. Nikishova for experimental help. There are 1 table and 7 references: 4 Soviet, 2 US, and 1 Dutch.

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Reactions Leading to the Formation of the Isomer Pb^{205m}

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B006/B056

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences USSR)

SUBMITTED: July 29, 1960

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PHASE I BOOK EXPLOITATION SOV/5450

Yampol'skiy, Pavel Abramovich

Neytrony atomnogo vzryva (Neutrons of an Atomic Explosion) Moscow, Gosatomizdat, 1961. 131 p. 5,000 copies printed.

Ed.: A.V. Matveyeva; Tech. Ed.: Ye. I. Mazel'.

PURPOSE: This book is intended for nuclear physicists and for radiation-monitoring specialists and technicians.

COVERAGE: The book describes the physical processes accompanying the action of neutrons from an atomic explosion and discusses basic problems in neutron physics, the laws governing the interaction of neutrons of different energies with matter, the diffusion and retardation of neutrons, and methods for recording neutron fluxes. The author analyzes the space distribution of neutrons during air and ground bursts, as well as the role of delayed neutrons which considerably increases in the presence of a cavity facilitating their passage through the air. The problem of γ-radiation induced by neutrons, i.e., from neutron capture in the air, is investigated. This radiation is of short duration,

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Neutrons of an Atomic Explosion SOV/5450

ending 0.2 to 0.3 sec after an atomic explosion, but in certain cases constitutes 50% of the overall γ-radiation dose. Protracted γ-radiation from the neutron-activated earth constitutes, along with fission fragments, residual radiation. Problems in dosimetry and the determination of the biological dose from neutrons during an atomic explosion are dealt with in a separate chapter.
The author thanks Ya. B. Zel'dovich, O.I. Leypunskiy, A.M. Tikhomirov, G.G. Petrova, Ye. Ya. Lantsburg, and O.M. Kovrizhnykh. There are 39 references: 22 Soviet and 17 English.

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22126
S/056/61/040/003/006/031
B102/B202

24.6720

AUTHORS: Glagolev, V.L., Yampol'skiy, P.A.

TITLE: Study of the reactions (n,2n) leading to the formation of isomers

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40, no. 3, 1961, 743 - 748

TEXT: The authors have presented the investigation methods and the preliminary results in previous papers (ZhETF, 36, 1046, 1959 and 39, 1621, 1960); in this paper, further details are given. The samples were bombarded with neutrons which were emitted in a pulsed bombardment by D_2^+ ions of a thick tritium zirconium target. The neutron energy spectrum had a maximum at 14.7 Mev with a half-width of 0.25 Mev. The following results were obtained: The lead isomer which had been formed in the reaction $Pb^{208}(n,2n)Pb^{207m}$ had a half-life of 0.81±0.02 sec, the isomer production cross section was $\sigma_m = 1.7 \pm 0.3$ b. Similar experiments were made with

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